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# Introduction to the Run II Upgrades

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Department of Energy MiniReview  
Tevatron Run II Luminosity Upgrades  
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## Goals and Strategy

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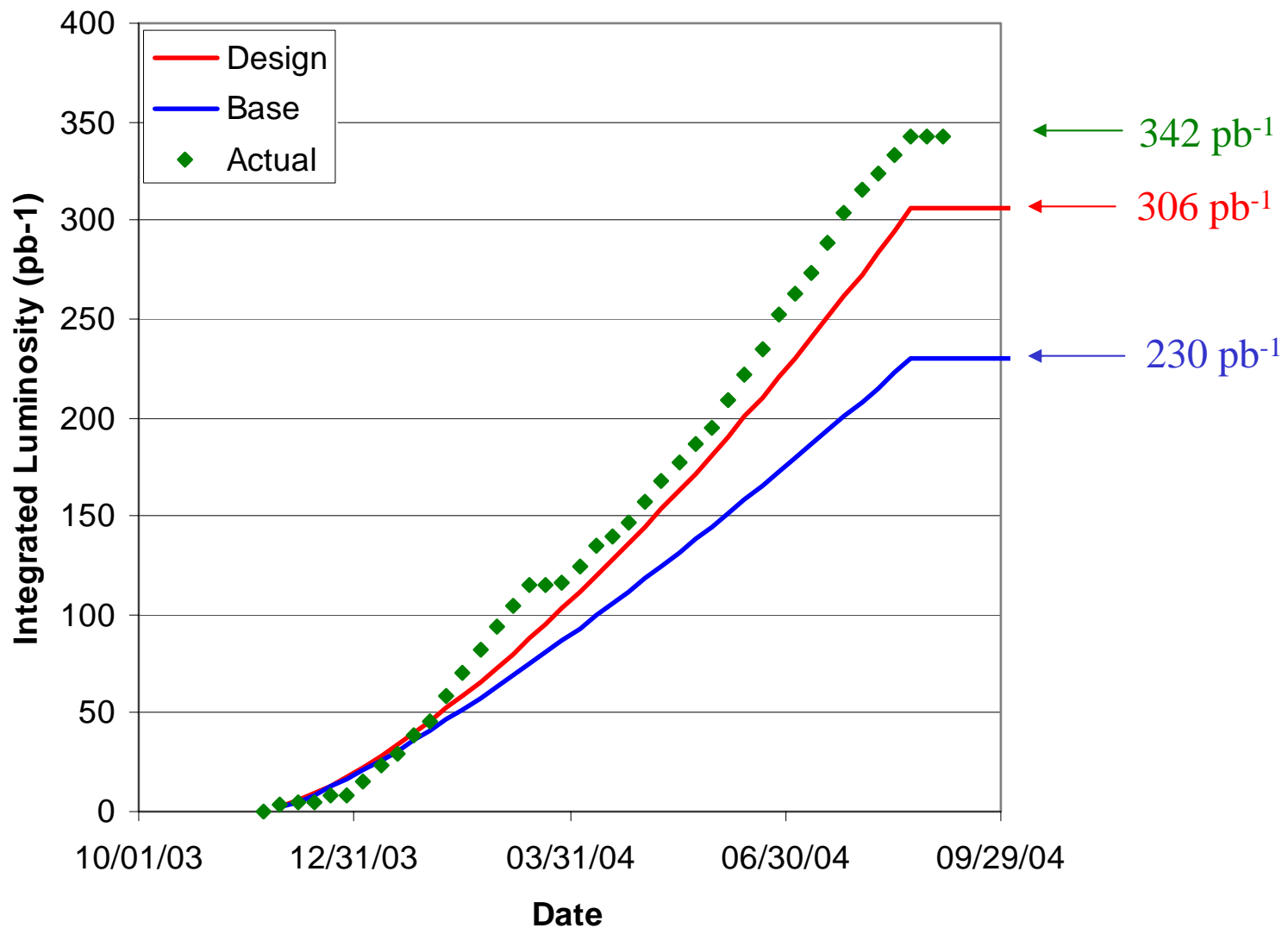
- The goal of the Run II upgrade program remains to deliver the **maximum integrated luminosity to the collider experiments in the pre-LHC era**, consistent with available technologies and resources.
- **“Run II is not a construction project. Run II is a complex campaign of operations, maintenance, upgrades, R& D and studies.”** D. Lehman to HEPAP, July 2003
- The Run II plan itself, and in particular the luminosity projections, remain dependent on successful upgrades to support higher antiproton stacking and storage capabilities.

## Scope of Presentations

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- We will present progress relative to the Run II Upgrade Plan:
  - FY2004 performance above the design projection
  - Technical achievements over a broad front
  - Major milestones largely met, with adjustments as necessary
  - All major scope decisions for v3.0 taken
  
- We will present the second revision of the Run II Upgrade Plan (v3.0):
  - Supported by accomplishments of the last six months
  - Revised (more robust) strategy relative to antiproton stacking upgrades.
  - Added instrumentation upgrades
  - Projected luminosity through FY2009 (essentially unchanged):
    - Design = 8.2 fb<sup>-1</sup>
    - Base = 4.1 fb<sup>-1</sup>

# FY2004 Performance



## Accomplishments of the last six months

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- FY2004 run completed on schedule with spectacular results:
  - Tevatron
    - Median and peak luminosities a factor of 2 beyond the end of FY2003.
    - First store to achieve  $1 \times 10^{32} \text{ cm}^{-2} \text{ sec}^{-1}$
    - Sustained high reliability operations
  - Recycler
    - Utilization of antiprotons for luminosity (four highest luminosity stores)
    - Performance specification for integration of electron cooling met.
    - e-cool R&D program complete
- Organization and Management
  - No significant changes: the management team continues to do a great job.
- 2004 shutdown is now underway.
  - Activities in this shutdown will set up the FY2005 operations

## What we would like out of this Review

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- We hope the committee will concur with, and reflect in your report, our view that:
  - The Run II Upgrade Plan prepared is being successfully implemented under the direction of the Accelerator Division management team.
  - The Run II Upgrade Plan v3.0 represents a sound, well-motivated, approach to maximizing luminosity over the FY2005-09 period.
  - Successful implementation of antiproton stacking and cooling upgrades remain key to achieving design projections. R&D activities in these areas are effectively targeted to maximize the probability of success.
  - There is high confidence the base projection will be met or exceeded.
  - The current strategy and associated activities maximize the probability of the design projection being achieved.